IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	§	Attorney Docket No. 8907
Yung-Seop Lee	§	
	§	Customer No. 26890
Serial No. 09/782,149	§	
	§	Group Art Unit: 3623
Filed: February 14, 2001	§	
	§	Examiner: Peter H. Choi
For: COMPUTER IMPLEMENTED	§	
CUSTOMER VALUE MODEL IN	§	Confirmation Number: 8329
AIRLINE INDUSTRY	§	

REPLY BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
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   This Reply Brief is submitted in response to the Examiner's Answer dated 3 September 2008, and to the Office Communication dated 26 September 2008. For reference purposes, the list of claims is attached hereto as the Claims Appendix.

STATUS OF CLAIMS

Claims 1-7 and 10-16 are pending, stand finally rejected, and are on appeal here. Claims 8-9 have been cancelled. Claims 1-7 and 10-16 are set forth in the Claims Appendix attached hereto.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I.   Claims 1-7, 10, and 14-16 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter.

II.   Claims 1-7, 10, and 14-16 stand rejected under 35 U.S.C. § 103(a) over "Quick Profits with RFM Analysis" by Arthur Hughes ("Hughes") in view of U.S. Patent No. 6,925,441 to Jones et al. ("Jones").

III.   Claims 11-13 stand rejected under 35 U.S.C. § 103(a) over "Quick Profits with RFM Analysis" by Arthur Hughes ("Hughes") in view of U.S. Patent No. 6,925,441 to Jones et al. ("Jones") and further in view of Database Marketing Institute's RFM for Windows® ("RFM").

ARGUMENT

Examiner's Answer to Appellant's Brief

I. Numbers 6 and 9 (Pages 2-7) of the Office Communication Dated 26 September 2008

Claims 1-7, 10, and 14-16 were rejected under 35 U.S.C. 101 for allegedly being directed to non-statutory subject matter. With regard to the rejection of claims 1 and 10, the Examiner stated the following:

> Claims 1 and 10 are rejected under 35 U.S.C. 101 based on Supreme Court precedent, and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing...If neither of these requirements is met by the claim, the method is not a patent eligible process under 35 U.S.C. 101 and is non-statutory subject matter.

> Claims 1 and 10 recite a process of evaluating a plurality of stored customer records to identify high value customers. Although the preamble of claims 1 and 10 recite that said process is "computer-implemented", this is deemed to be a nominal tie to another statutory class of invention...

Office Communication dated 26 September 2008, Pages 5-6.

Appellant disagrees. First, Appellant notes that claims 1 and 10 recite a computer implemented method of evaluating records stored in a computer database and recite various steps of sorting the database records. Accordingly, Appellant submits the process is intrinsically tied to a computer-implemented process and is thus statutory.

Further, the Appellant notes the claimed steps of sorting the database records necessarily require a transformation of the underlying subject matter, i.e., records stored in a computer database.

Thus, the Appellant submits that claims 1 and 10 are both tied to another statutory class and transform underlying subject matter. For at least these reasons, Appellant requests the rejections of claims 1-7, 10, and 14-16 under 35 U.S.C. 101 be withdrawn.

II. Number 10 (Pages 23-26) of the Examiner's Answer Dated 3 September 2008

With regard to the claim 1 limitation of "fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks," the Examiner stated the following:

> Regarding the claimed fourth and fifth sortings, the Examiner asserts that, as noted above, customer records are sorted and assigned discretized attribute scores for two separate attributes (total dollar sales, and frequency), resulting in each customer record belonging to one of twenty-five different theoretical cell groups...in which customers with the same discretized attribute scores for the first attribute (total dollar sales) may be sorted/separated apart based on their respective discretized attribute score for the second attribute (frequency)...
>
> ...Thus, the Examiner asserts that the placement of customers into their respective three digit RFM cell codes, which is based on the attribute values associated with both the first and second attributes and a third attribute, meets the claimed limitation of "fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks."

Examiner's Answer dated 3 September 2008, Pages 25-26.

Appellant disagrees and again notes that each sorting performed by Hughes is performed independently of one another. For example, the sorting of customer records based on the monetary value for assignment of a code described by Hughes is performed independently from the sorting based on the frequency. Hughes does not in any manner describe or suggest "fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute" nor "fifth sorting **the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute.**" Further, the three digit RFM cell codes simply comprise three codes each resulting from separate sorts of the records that are each performed independently of one another.

With further regard to the Examiner's position that placement of customers into their respective three digit RFM cell codes meets the claimed limitation of "fifth sorting the ordered

plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks," Appellant respectfully disagrees. For example, Hughes cites the following with regard to the three digit cell code:

> From your RFM coded database, pick out a test group. Let's say that you select 30,000. If you have 125 cells, each cell will contain 240 customers.

Hughes, Page 2.

Thus, Hughes is clear that customer records are in no manner "sorted to different ranks."

Independent claim 10 recites similar features as claim 1 and was rejected for similar rationale. For at least the reasons discussed above, Hughes and Jones fails to obviate claim 10.

Therefore, Appellant believes the rejections of claims 1 and 10 are not supported by the Hughes and Jones references, and such a notice is respectfully requested.

Conclusion

For all of the foregoing reasons, it is respectfully submitted that claims 1-7 and 10-16 be allowed. A prompt notice to that effect is respectfully requested.

Respectfully submitted,

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Dated: 3 November 2008

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CLAIMS APPENDIX

1.   A computer implemented method of evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the method comprising:

a)   first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;

b)   second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

c)   third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;

d)   fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

e)   fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

f)   assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

g)   identifying the high value customers by selecting the customer records that have the highest assigned evaluation scores.

2.   The method of claim 1, wherein step (a) includes the steps of:

(i) breaking the sorted plurality of customer records into a number of groups based on the rank of each customer record and its first attribute values; and

(ii) for each customer record in a group, assigning the same first discretized attribute score.

3.   The method of claim 1, wherein step (b) includes the steps of:

(i) breaking the sorted plurality of customer records into a number of groups based on the rank of each customer record and its second attribute value; and

(ii) for each customer record in a group, assigning the same second discretized attribute score.

4.   The method of claim 1, wherein step (a) includes the steps of:

(i) breaking the sorted plurality of customer records into quartiles; and

(ii) for customer records of the same quartile, assigning one of the scores of 1, 2, 3, and 4 as the first discretized attribute.

5.   The method of claim 1, wherein step (f) includes the steps of:

(iii)splitting the customer records, which have been sorted, into a number of groups based on their current ranking; and

(iv)assigning an evaluation score for the customer records of each group.

6.   The method of claim 1, wherein step (f) includes the steps of:

(v) splitting the customer records, which have been sorted, into 100 groups based on the current ranking of the customer records; and

(vi) assigning an evaluation score of between 1 and 100 for customer records of each group.

7. The method of claim 1, wherein step (e) is performed until customer records, which have same assigned first and second discretized attribute scores but different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

8. (Cancelled)

9. (Cancelled)

10. A computer implemented method of evaluating customers in the airline industry in a given period to identify high value customers, the method comprising:

b) obtaining records of each customer' contribution factors with associated values, the contribution factors including at least net revenue and number of flights;

b) storing the records in a database;

c) first sorting the records based on the first attribute and assigning a first discretized attribute to each record where the first discretized attribute is based on the sorted rank of the record;

d) second sorting the records based on the second attribute and assigning a second discretized attribute to each record where the second discretized attribute is based on the sorted rank of the record;

e) third sorting of the records in to an order based on the assigned first discretized attribute scores associated with the first attribute;

f) fourth sorting the ordered records resulting from the third sorting in to an order where the records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

g) fifth sorting the ordered records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

h) assigning an evaluation score to each record based on the rank of each record after the fifth sorting and independent of the discretized attribute scores; which has been sorted ; and

i) based on the evaluation score, identifying high value customers. identifying the high value customers by selecting the records that having the highest assigned evaluation scores.

11. A computer architecture for evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising:

c) means for first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;

b) means for second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

c) means for third sorting the plurality of customer records in order based on the assigned first discretized attribute scores associated with the first attribute;

d) means for fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

e) means for fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

f) means for assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

g) means for identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

12. A computer system for evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer system comprising:

a processor; and

a memory coupled to the processor, the memory having stored therein sequences of instructions, which, when executed by the processor, cause the processor to perform the steps of:

first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;

second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;

fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

13.	An article, for use in evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the article comprising:

at least one sequence of machine readable instructions in machine readable form,

wherein execution of the instructions by one or more processors causes the one or more processors to perform the steps of:

first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;

second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;

fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

14. The method of claim 1, wherein step (b) includes the steps of:

    (i) breaking the sorted plurality of customer records into quartiles; and

    (ii) for customer records of the same quartile, assigning one of the scores of 1, 2, 3, and 4 as the second discretized attribute.

15.   The method of claim 1, where the first attribute includes the revenue generated by the customer.

16.   The method of claim 1, where the second attribute includes the number of purchases made by the customer.